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Comments:**1. Amended Claims****1. New and Amended Claims**

Claim 1 has been amended to include "wherein said process is controlled by the reaction of the reaction of the non-cyclic organic substance having multiple functionality with the base." No new matter has been added with this amendment. For support, see paragraphs 36-42 in which the controlling hydrogen producing reaction is that of hydrocarbon and water (reactions 16, 18, 20, 22) is shown along with the claimed controlling reaction (reactions 17, 19, 21, 23) (that is, the controlling reaction where hydrogen is produced by a reaction of a non-cyclic organic substance having multiple alcohol functionality with a base.) Further support and explanation can be found in patent number 6,607,707 whose specification was incorporated in its entirety in the present case. In particular, see column 6, line 59 – line 64 "As the amount of base increases, [a reaction of an organic substance with the base] ... eventually becomes controlling." Therefore, entry of the amendment is respectfully requested.

2. Rejection of claims 1-40 under 102(e) or under 103(a) as obvious over either Cortright '757 or Cortright '457.

Claim 1 requires reacting an organic substance that includes four or more carbon atoms per molecule with a base. Both Cortright '757 and Cortright '457 require reacting the organic substance with water, wherein the alkali metal salt only acts as a catalyst, but does not take part in the reaction. The section of Cortright references cited by the examiner describes this as follows:

reacting water and the water-soluble oxygenated hydrocarbon in the presence of a water-soluble salt of an alkali or alkali earth metal.
(Cortright '457 column 3, line 66 – column 4, line 2 and Cortright '757 column 4, lines 8-10)

As clearly indicated cited portion above, Cortright does not teach reacting **an organic substance with a base** but only describes reacting water and an organic substance in the presence of a base. As explained in U.S. Patent Number 6,607,707 (granted to the same inventors as the instant application and incorporated by reference in the present application) in order for a base to react with a hydrocarbon, the pH of the reaction mixture must be sufficiently high. In the reaction described in the '707 patent, this pH was above 10.3 (see the '707 patent column 7, lines 4-5.)

Cortright, however, only teaches reactions having lower pHs (see, column 3, lines 40 of Cortright'457 and column 3 line 51 of Cortright '757). Therefore, Cortright does not teach using sufficient concentration of base so that the reacts will **react** with the base as taught by applicants.

Applicants further explain advantages due to the reaction of base with hydrocarbon including lower reaction temperatures (thereby requiring less energy) and substantially high purity hydrogen (no other environmentally unfriendly gases such as carbon dioxide are formed.)

In particular, Applicants demonstrate the large differences in Gibbs free energy for organic substances with four or more carbon atoms per molecule reacting with water and for organic substances with four or more carbon atoms per molecule reacting with base (see, for example, page 3, paragraph 18.)

In contrast to Applicants teachings, each of the reactions in the Cortright references that form hydrogen also form environmentally unfriendly gases such as carbon dioxide. This occurs because the oxygenated hydrocarbons of Cortright are not reacting with the base, but are instead reacting only with water.

Therefore, applicant respectfully submits that the rejections of claims 1-40 under 102(e) or under 103(a) in view of Cortright '757 and Cortright '457 have been overcome.

2. Provisional Double Patenting Rejection over U.S. Patent 6,607,707

The PTO has made a provisional double patenting rejection of claims 1-40 over U.S. Patent 6,607,707 and over U.S. Patent Application Number 11/232,272. However, the claims have not been otherwise allowed by the PTO. Since the scope of the claims could change upon prosecution and amendments of the claims, the claims may not require a terminal disclaimer at the time when the claims are in a condition for allowance. Therefore, Applicants will, if necessary, file a terminal disclaimer when the claims are otherwise in condition for allowance.

Applicants respectfully request withdrawal of all outstanding rejections and respectfully submit that the application stands in condition for allowance. If the Examiner has any questions or suggestions regarding this amendment, the Examiner is respectfully asked to contact Applicant's representative at the telephone number or email address listed below.

Respectfully submitted,



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